Aerosol, Cloud and ocean Ecosystem Mission (ACE)

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GSFC
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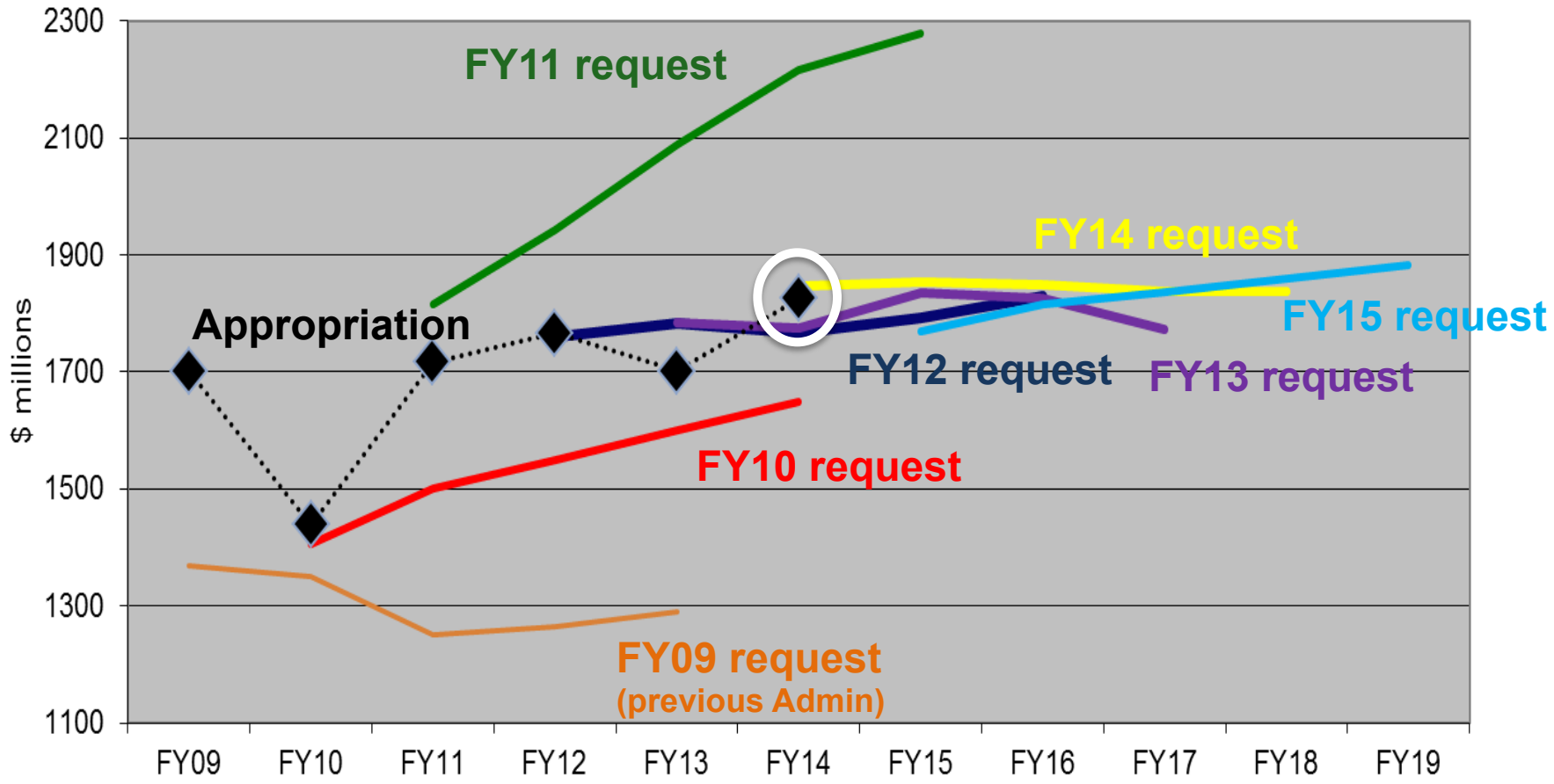
HQ Perspective - Outline

- Contents
  - *Overview of ESD Budget*
  - *Overview of FY14 Guidance from Steve Volz*
  - *Q&A on Next Decadal Survey with Mike Freilich*

ESD Budget Overview



FY 2015 Budget Request

				Notional			
	FY 2013 Op Plan*	FY 2014 Enacted**	FY2015	FY2016	FY2017	FY2018	FY2019
Science	4,781.6	5,151.2	4,972.0	5,021.7	5,071.9	5,122.6	5,173.9
Earth Science	1,659.2	1,826.0	1,770.3	1,815.5	1,837.6	1,861.9	1,886.3
Planetary Science	1,274.6	1,345.0	1,280.3	1,304.9	1,337.1	1,355.7	1,374.1
Astrophysics	617.0	668.0	607.3	633.7	651.2	696.8	993.0
James Webb Space Telescope	627.6	658.2	645.4	620.0	569.4	534.9	305.0
Heliophysics	603.2	654.0	668.9	647.6	676.6	673.3	675.5
Aeronautics	529.5	566.0	551.1	556.6	562.2	567.8	573.5
Space Technology	614.5	576.0	705.5	712.6	719.7	726.9	734.2
Exploration	3,705.5	4,113.2	3,976.0	4,079.9	4,061.2	4,119.5	3,673.4
Exploration Systems Development	2,883.8	3,115.2	2,784.4	2,863.3	2,917.7	2,993.9	3,106.6
Commercial Spaceflight	525.0	696.0	848.3	872.3	791.7	730.9	172.0
Exploration Research and Development	296.7	302.0	343.4	344.3	351.8	394.7	394.7
Space Operations	3,724.9	3,778.0	3,905.4	3,951.9	4,051.0	4,073.8	4,601.8
Space Shuttle	38.8		0.0	0.0	0.0	0.0	0.0
International Space Station	2,775.9		3,050.8	3,126.5	3,266.9	3,290.3	3,818.6
Space and Flight Support (SFS)	910.2		854.6	825.4	784.1	783.5	783.2
Education	116.3	116.6	88.9	89.8	90.7	91.6	92.6
Cross Agency Support	2,711.0	2,793.0	2,778.6	2,806.4	2,834.4	2,862.8	2,891.4
Center Management and Operations	1,991.6		2,038.8	2,059.2	2,079.7	2,100.5	2,121.6
Agency Management and Operations	719.4		739.8	747.2	754.7	762.3	769.8
Construction & Envrmtl Compl Restoration	646.6	515.0	446.1	379.0	382.7	386.6	390.4
Construction of Facilities	589.5		370.6	302.7	305.7	308.7	311.8
Environmental Compliance and Restoration	57.0		75.5	76.3	77.0	77.8	78.6
Inspector General	35.3	37.5	37.0	37.4	37.7	38.1	38.5
Grand Total	**16,865.2**	**17,646.5**	**17,460.6**	**17,635.3**	**17,811.5**	**17,989.7**	**18,169.7**

As reflected in the August 2013 Operating Plan, FY 2013 includes rescissions per P.L.113-6 Division G, Section 3001(b)(1)(B) and Division G, Section 3004(c)(1) and reductions due to sequestration per BBEDCA Section 215A.

FY 2014 reflects funding amounts specified in P.L. 113-76, Consolidated Appropriations Act, 2014, including amounts noted in the Explanatory Statement. Where amounts were not specified, no amount is shown in the budget table.

Note: Funds associated with out-year estimates for programmatic construction remain in programmatic accounts.

3 ESD-developed EO missions launch in CY 2014
2 ISS-developed EO instruments in 2014, 1 in 2016
9 more ESD EO launches before 2022

Earth Systematic Missions Program

- Phase E: GPM, TRMM, Terra, Aqua, Aura, EO-1, OSTM/ Jason-2, S-NPP, [Landsat-7], Landsat-8
  - ACRIMSAT & QuikScat to be terminated, SORCE TBD
- Phase C/D: [DSCOVR (2015)], SMAP (2014), SAGE III (2015), GRACE FO (2017), ICESat-2 (~2018)
- Phase A/B: SWOT (2020), RBI (2019), OMPS-L (2019)
- Pre-Phase A:
  - Near term: PACE (~2020), NI-SAR (~2020/2021), TSIS (2021)
  - Sustainable Land Imaging – pending outcome of NASA/USGS study and Administration decision
  - Longer term (lower level): CLARREO, HyspIRI, ACE, ASCENDS, GEO-CAPE
- Multi-Mission Operations, including EOSDIS and DAACs

2013 Pre-Formulation Review

- 17 September 2013
  - *ACE Guidance Letter issued 14 January 2014*
  - *No Guidance Letter issued on PACE (subject of PACE talk)*

FY 2014 Guidance (1 of 3)

- Continue:
  - *Instrument capabilities definition*
  - *Science studies (finish current, de-emphasize new starts)*
  - *Measurement capabilities definition*
  - *Algorithm development*
  - *Explore the complementarity of ocean color measurements on PACE and ACE*
- De-emphasize:
  - *Mission concept development*
  - *Development of mission Level 1 Science Requirements*
  - *Update of mission costs*

FY 2014 Guidance (2 of 3)

- Specific Tasks:
  - *Complete the Science Traceability Matrices*
  - *Complete the UV laser lifetime study, and publish the results in a technical paper, if appropriate*
  - *Explore the possible connection to and/or evolution of measurement requirements from PACE to ACE*
  - *Complete processing of the data from the PODEX campaign; begin processing of data from RADEX 1 (IPHEX) campaign*
  - *Develop a rationale for how future airborne campaigns support the ACE atmospheric science requirements, especially in the light of the upcoming Earth Science Decadal Survey*
  - *Support the Earth Systematic Missions (ESM) Systems Engineering Working Group (SEWG) studies on TRL definition and instrument cost studies*

FY 2014 Guidance (3 of 3)

- *Complete a comprehensive development report* of the ACE mission study activities:*
  - *Summarizing the results of the 5 years of pre-formulation work*
  - *Detail the team's plans, efforts, and accomplishments in technology assessment and development, mission concept studies*
  - *Field campaigns conducted, measurement algorithms investigated, and mission and measurement science requirements and objectives*
  - *document the support and investments from other ESD elements, such as:*
    - Research & Analysis
    - Earth Science Technology Office
    - Other
- FY14 Budget for ACE: $4M
- FY15 Budget Plan for ACE: $4M

* This report will be used by ESD in preparation for the next Decadal Survey, and for assessment of future investments in this and other mission studies

Q&A on Next Decadal Survey (1 of 2)

Q: When will the next DS process be started?

A: Discussions with the NRC regarding the DS have begun. The CESAS committee has met in Irvine to generate a DRAFT Statement of Task based on a variety of inputs they have received, including from ESD. The SOW will be iterated between the committee and ESD. It is expected that the DS process will be underway by the start of CY2015 (likely sooner).

Q: When will the next DS be published?

A: The next ESAS DS is expected to be published early in CY 2017 (the first ESAS DS was published in January, 2007).

Q: Will NOAA and USGS be co-sponsoring this DS like the last DS?

A: We expect so, although this has not been confirmed.

Q&A on Next Decadal Survey (2 of 2)

Q: Has the process of getting community input been established?

A: This will be up to the NRC DS committee, once the committee has been established by the NRC.

Q: Has the scope of what the DS will solicit been established?

A: The SOW will detail the scope of the DS. It is expected to cover the entire present scope of ESD activities (Flight, R&A, Applied Sciences, Airborne, ESTO).

Q. Have the details of what will be solicited been established? Science priorities/questions? Measurements? Instruments/sensors? Missions?

A: The NRC committee will determine how, and for what questions covered by the SOW, they will be soliciting information.

Useful Input Hoped for from Decadal Survey

- In the Context of:
  - *ESD budget will not increase*
  - *Other agencies will not transition measurements from ESD*
- Recommend target budgetary balance between Flight, Non-Flight
- Recommend target budgetary balance between R&A, Applied Science, and Technology
- Change scope(s) of R&A, Applied Sciences, Technology programs?
- Recommend the target budgetary balance between systematic/ directed, and cost/schedule-constrained competed, mission programs
- A maximum acceptable mission cost (“Flagships”)?
- Establish other Venture-like programs, with different caps?
- Flight mission architecture/approach recommendations
- Engineering investments in common s/c? “Small-sats/constellations”?
- Provide decision principles for balancing new measurements and time series extensions of existing data sets
- How to account for international missions/programs, some long-term?
- Revisit priorities of named missions from 1st Decadal Survey

Questions?